

Internal Secretions.

Gland - a coiled tubule with duct leading from it.

- salivary glands.
- pancreas etc.

Ductless glands - endocrines.

- internal secretion made up of small cells woven together to form a network of blood vessels, manufacturing a hormone & secreting it into the blood & lymph.

Hormone function - chemical function.

Thyroid - in neck -

- 2 lobes - on either side of trachea.
- hormone is thyroxine - contains iodine.

Hypo - gland - incomplete development of thyroid produces slow metabolism, physical & mental inactivity.

Hyper - gland - excess of function - opposite result. ^{thin}

Cretinism - caused by lack of thyroxine
small, - low mentality,
large head
flabby skin etc.

Myxedema - older people.

- sluggish, inert
skin swollen.

- activity of respiration,
circulation impaired.

Goitre - cells manufacture fluid
instead of thyroxine & collect
it into central cell.

Parathyroid -

- 4 parts opposed to thyroid
different hormones from thyroid
- parathyroid hormone influences
sugar metabolism &
regulates calcium metabolism.

Pituitary - 2 parts -

Anterior - upper part of mouth.

Posterior - ventral part of prebrain.

Hormone pituitary - causes contraction
of smooth muscle & blood vessels
- hormones secreted by ant. part
affect growth.

Hypertrophy of Ant. lobe produces
acromegaly.

In adults - large hands, feet, head & jaw.

In children - growth increases.

Hypopituitarism - retarded growth
low mentality.

Pancreas - near small intestine
secretes insulin.

- both ductless & with duct.

- uses up glucose.

Diabetes - insufficient insulin.

- Adrenals - part of upper part kidney.
 - chromaffin cells produce hormone adrenalin.
 - are in medulla of cells & in ganglia of S.N.S.

Adrenalin - stimulating effect on organs innervated by S.N.S.

- increases heart beat.
- decreases peristalsis.
- increases amount of glucose in blood.

Cortin - hormones of cortex influence genital organs.

- Pituitary gland - pituitary - sex hormone.
- Thymus - lower than thyroid.

Secretin - hormone.

- secreted by mucous cells of small intestine into blood & carried to pancreas, where it stimulates release of pancreatic juice - goes to liver also.

Thymus gland - prominent in child growth

- general metabolism & growth.

All endocrine glands work together.

Androgyne - person with both male & female sex hormones.

- Corpus luteum - tiny protruberance on surface of ovary - consists of cells.
 - when egg is not fertilized it degenerates.

External Stimulation - nervous system

Internal " - endocrine glands.

Work in co-ordination.

Endocrines stimulated by nervous system

Nervous S. " " endocrines.

Pineal gland - between 2 hemispheres
behind duct of Sylvius.

- injury - violent headaches.
- if enlarged - gives same symptoms as a tumor on brain.
- inhibits sexual development.
- at puberty, becomes inactive & smaller. If regression occurs too early - child becomes prematurely mature.

Adrenalin

- acts S.N.S. onto extra energy.
- neutralizes fatigue products.
- liberates sugar from liver to muscles.
- releases prothrombin from liver - to clot blood.
- dilates pupils of eye.

Follicular hormone -

- 1) controls menstrual cycle.
- 2) nervous strain
 - upsets calcium balance.

● Secretin - small intestine to pancreas.
- released on food consumption.

Sex + Reproduction.

Menstruation - exercise lightly -
lots of sleep.
emotional disturbances.
don't overeat.
don't get chilled

True Organs of Reproduction.

- those producing egg.

● Accessory Organs - vagina etc.

Menstruation -

- discharge of blood from uterus.
- membrane swells + then breaks down - capillaries bleed.
- after menstruation - membrane is destroyed + replaced by regenerations.

Ovulation - takes place at same time.
- egg liberated from ovary + taken into oviduct.

Secretion from ovaries + corpus luteum initiates menstruation.

● Secondary sex characters -

produced by hormones from endocrine secretion of sex gland.

Syphilis - parasite enters body.

- chancre forms.
- lymph glands swell.

Eye.

Hollow globe - from brain tissue (forebrain)
- 1" diameter
- almost spherical.

Cornea - transparent part.

Iris - color part. - continuation of white.

Black spot - hole - Pupil.

eyelids - keep eye clean, clear, moistened.
- lined by membrane - delicate.
conjunctiva.



Teat ducts - upper + lower lids.

Slow blinking eyes - keep out of dust.
- diabetes.

Teat " " - nervous system.

Protection - layers of fat around sides + back.
- eye socket - bone.

Muscles - 6 of them.

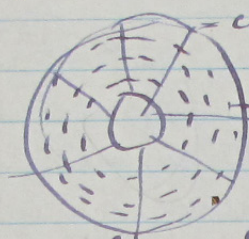
Sclerotic coat - tough + cartilaginous.
- whites of eye.

Chroid coat - contains arteries + veins.
- hole in front called Pupil
- foremost part called Iris.

Retina - true organ of sight.
- contain fibres of optic nerve.

Optic → nerve fibres
5 layers.
nerve cells
molecular layer - loosely knit cells
layers of rods + cones.
layer of pigment cells. nearest out.

Eye cavity - orbital cavity.



- contracting muscles.

- widening muscles (dilating)

Muscles change on shock, fear, etc.

Nerve - axons of ganglion cells.

Fibres - go to optic nerve. 800,000 nerve fibres.

Layer of rods + cones.

- close connection with surrounding layers.

- transmit vision.

- lights from vision - retina, then brain.

Rods - effect sight in dark.

- lack of rods - night blindness.

- lack of vitamin A.

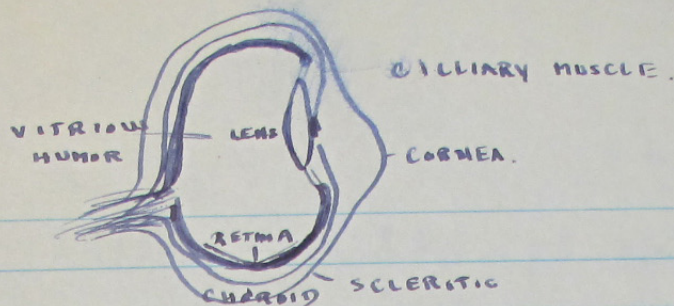
- snow blindness -

- over-stimulation of rods.

visual purple - bleaches when light strikes

Pigment - light thrown back to layer of r. + c. layer.

Molecular - connects rods + cones to ganglion cells.



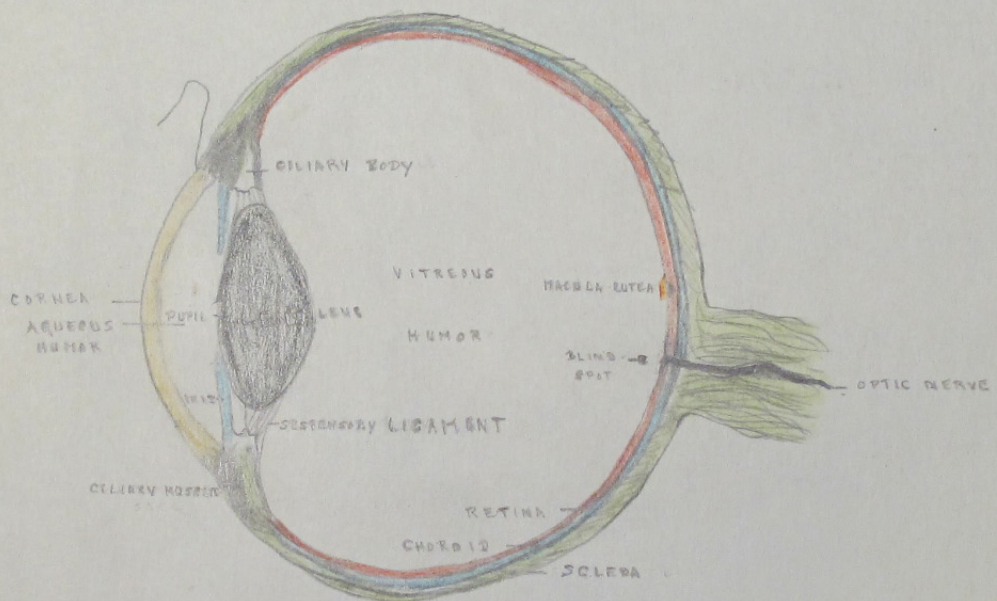
Muscles contract - lens flat, thicker
 " relax - lens round thinner

Fovea centralis - centre of retina.

Yellow spot - sensitive part of retina.
 contains fovea.

- contains no rods, all cones.
 sensitive to light.

SECTION OF THE EYE



eye

Eye - developed among superficial cells of ectoderm.

- outgrowth of forepart of brain.
(primary optic vesicle)

Situated - orbital fossae of skull

- protected by eyelids.

Lids - muscle attached to cartilaginous plates.

- covered by skin - lined mucous membrane

Secretion - by lacrimal glands (above eye)

- drained by nasal duct by openings at inner angle of lids.

Conjunctival sac - mucous membrane lining, reflected from lids onto front of eye. edges - hairs.

Mebomian glands - secrete oily liquid prevent overflow of tears & lids sticking together.

Structure - globular organ.

- 3 coats

- divided in 2 chambers.

by ciliary body, lens & iris.

- control & refract light rays.

Sclera - outer coat - tough, fibrous tissue gives form.

- attachment of muscles.

Cornea - coat of connective tissue is continuation of sclera.

- transparent.



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